Volatile Organic Sample Preservation

Volatile organic preservation is analyte and Regulation specific. It is important that the laboratory and client communicate so that proper collection and analysis can be performed. The laboratory must know under which Regulation the samples are being analyzed so that proper procedures can be used.

Wastewater and Other Water Monitoring as required by 40 CFR Part 136 (NPDES Permits) – Samples analyzed using EPA Methods 624 and 1624

Volatile preservation is addressed in Table II of 40 CFR 136.3. The CFR assigns a number to each compound in Table 1C. Table II, which lists preservation, refers to the compounds by number rather than compound name. Therefore, the laboratory must refer to both tables to understand the preservation required for each individual compound.

The Purgeable Halocarbons group includes the majority of the volatile compounds regulated under 40 CFR Part 136. Table II requires the use of cooling to 6°C for preservation for the Purgeable Halocarbons. The use of HCl to lower the pH of the sample is not allowed. Sodium thiosulfate is required in the presence of residual chlorine. The holding time is 14 days from sample collection for the Purgeable Halocarbons.

The Purgeable Aromatic group includes Benzene, Ethylbenzene, and Toluene. Preservation for these three compounds is addressed in Table II and is identified by the numbers corresponding to the compound name in Table 1C. Table II requires the use of cooling to 6°C plus the addition of Hydrochloric acid (HCl) to pH<2. If residual chlorine is present, the sample must be dechlorinated using sodium thiosulfate **prior** to the addition of HCl. Samples requiring analysis for these compounds may be collected without pH adjustment (HCl addition) but must be analyzed within 7 days of sample collection.

If samples require analysis for both Purgeable Aromatic Hydrocarbons and Purgeable Halocarbons, the sample must be collected unpreserved and analyzed within 7 days of sample collection to analyze the sample using one vial. Sample collection can be performed by collecting one unpreserved vial for Purgeable Halocarbon analysis and a separate preserved vial for Purgeable Aromatic Hydrocarbons. Collecting separate vials would cause the laboratory to run the sample twice.

Acrolein and Acrylonitrile require different sample preservation. Samples must be adjusted to pH 4 – 5 if Acrolein is to be analyzed. If Acrolein is not an analyte of interest, the sample may be collected unpreserved and analyzed within **3** days of collection. So, samples requiring Acrolein and Acrylonitrile must be collected in a vial with the pH adjusted to between 4 and 5 s.u. The holding time for that vial is 14 days. If the laboratory chose to analyze Acrylonitrile only from an unpreserved vial, the holding time becomes 3 days.

Solid and Hazardous Waste Sample (Including Groundwater samples analyzed using SW846 Method 8260B)

The sample preservation is the same as that described above for Wastewater and Ambient Water Samples.

Drinking Water – 40 CFR Part 141

Drinking water preservation is addressed in the method being used for analysis. The procedures identified in the approved method being used must be followed.

EPA Methods 502.2 and 524.2 require preservation of the sample to pH<2 after dechlorination. EPA Method 502.2 identifies specific instances where the preservation would be different. The laboratory and the sample collector must work together to ensure proper sample collection.